

REMARKS

The Examiner's attention to the Preliminary Amendment is noted with appreciation. All prior claims have been cancelled and new claims 67 – 170 have been added. These claims are better organized than the prior set of claims.

The remarks of the response submitted in the March 31, 2003 response are repeated below except that there were errors in the calculations and some typographical errors in that March 31, 2003 response. These errors are corrected below. Likewise, the Exhibit was not included and it is hereby submitted.

This Amendment and Response is in response to the Office Actions dated January 30, 2003 and April 16, 2003. The Examiner made several rejections to the claims and specification under 35 U.S.C. §112 and §132. We very much appreciate the Examiner's thoroughness, particularly in reviewing the changes requested by Applicant. The only changes which Applicant is requesting under this Amendment and Response are typographical errors that were made when the application was being prepared, as explained below. And, these changes are not necessary for the preferred ranges as set forth in the amended claims; again, the changes are being requested to correct the specification as to typographical errors. Applicant hereby cancels all other amendments not previously accepted by the Examiner. Claim 67 had been amended to go back to its original correct ranges. We apologize for the numerous changes requested previously by one of our prior associates; many of these requests were inappropriate.

Applicant respectfully requests that the 0.1 parts by weight on page 7 line 6, be changed to 0.01 parts by weight. The original application, as filed, had this correct range listed in original claim, which stated "between approximately 0.0001 and approximately 0.01 parts by weight." The use of 0.1 parts by weight was a clear typographical error. We attach a Declaration by the undersigned, showing notes from the original meeting with the inventors and the ranges of the organometallic compound listed as:

.0034  
.001-.005 narrow  
.0001-.01 broad

This Declaration also admits that this was a pure typographical error. Since these ranges were correctly transcribed into the original claims (see claims 12 and 13 as originally filed), it is requested that the typographical error be corrected. We note that claim 12 has been cancelled, as Applicant has amended all of its claims to the narrower range of less than 0.005 parts by weight of the organometallic compound. Nevertheless, Applicant wishes to correct the record to 0.01, as 0.1 is not within the scope of Applicant's invention.

On page 3 of the Office Action, the Examiner rejected claims 1-11 and 13-66 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention. Claim 1 has been rewritten to more clearly describe the fact that Applicants' invention is an iron-containing or non-platinum fuel additive that is added to at least 5,000 gallons of fuel. Likewise the parts by weight are those of the fuel additive. Claim 9 has been amended in that an additional organo-metallic compound is added. Claim 13 has been incorporated into claim 1 and is therefore cancelled. Claim 12 has been cancelled.

Applicants' invention is a fuel additive. It contains a much lower parts by weight of an iron-containing or a non-platinum organo-metallic compounds than prior art fuel additives. That parts by weight is less than approximately 0.005 parts by weight of the additive. This tiny amount has been found to be extremely effective while preventing buildup of "mud." Applicant has set forth calculations, below, to demonstrate how this parts by weight of the organo-metallic compound is much lower than the prior art cited by the Examiner.

The Examiner rejected claims 1-11 and 13-66 under U.S.C. § 103(a) as being unpatentable over Kitchen III 4,609,379 and 4,585,462 in view of Valentine, et al., and Hinkamp. Each reference is discussed below along with the calculations:

Kitchen 4,609,379

This patent does not teach an organo-metallic compound. All of Applicants' claims have an organo-metallic compound and therefore this reference is not applicable to Applicants' invention.

Kitchen 4,585,462

The Examiner correctly notes that this patent teaches a manganese organo-metallic compound. However, it teaches 20 parts by weight (see col. 2, line 63 and col. 3, line 63) of the manganese compound in the additive; a huge amount compared to the less than 0.005 parts by weight of organo-metallic compound in the additive of the present invention. Accordingly, this reference is not even in the same realm as Applicants' invention.

Hinkamp

First, Hinkamp adds a ferrocene powder to a fuel composition. This powder, ferrocene or iron pentacarbonyl, is 100% of the additive compared to Applicants' less than 0.005 parts by weight of the additive. Therefore, this reference is inapplicable to Applicants' invention. Nevertheless, Applicant will compare the two references assuming the additive is added to the fuel.

Hinkamp discloses a range of 0.01-0.22 g of iron (Fe) for each gallon of fuel. Since Applicants' ranges are lower than Hinkamp, we will use Hinkamp's lowest number of 0.01 g of Fe per gallon to Applicants' highest range of 0.005 parts by weight of ferrocene in the additive, at the lowest claimed

The present invention has (at the highest amount) 0.005 parts by weight additive in at least 5,000 gallons (the lowest dilution) of fuel. This is converted to ppm in the fuel as follows:

$$\begin{aligned}
 & 0.005 \text{ pts by weight (of 1 part)} \\
 = & 0.5\% \\
 = & 5,000 \text{ ppm in additive} \\
 \frac{5,000 \text{ ppm}}{5,000 \text{ gal}} & = \boxed{1 \text{ ppm in the fuel} = \text{Present Invention}}
 \end{aligned}$$

Hinkamp has, at the least, 0.01 g Fe/gal fuel using a specific gravity of diesel fuel of 0.81 (or one could use 0.75 as the specific gravity of gasoline):

$$\begin{aligned}
 \text{Note: } \frac{3,785 \text{ g}}{\text{Gal H}_2\text{O}} \times 0.81 & = \frac{3066 \text{ g}}{\text{gal diesel}} \\
 \text{Hinkamp: } \frac{(0.01 \text{ g})}{(\text{Gal fuel})} \frac{(\text{g diesel})}{(3,066 \text{ g})} & = 0.00000326 \\
 & = 0.000326\% \\
 & = \boxed{3.26 \text{ ppm in the fuel} = \text{Hinkamp}}
 \end{aligned}$$

As can be seen, the lowest amount of the Hinkamp additive is at more than 3 times the highest amount of Applicants' additive. Accordingly, Hinkamp is not applicable to Applicants' invention.

#### Valentine

As stated above, Applicant has, at the highest level, 1 ppm in the fuel.

Valentine discloses, at the lowest levels, 0.05 mg Pt/liter fuel and 1 ppm of Fe in the fuel. Again, using 0.81 as the specific gravity of diesel fuel.

$$\begin{aligned}
 \text{Note: } \frac{0.81 \text{ g}}{\text{MI (diesel)}} \times \frac{1,000 \text{ ml}}{\text{liter}} & = \frac{810 \text{ g}}{\text{liter}} \\
 \frac{810 \text{ g}}{\text{liter}} \times \frac{1,000 \text{ mg}}{\text{g}} & = \frac{810,000 \text{ mg}}{\text{liter}}
 \end{aligned}$$

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$$\begin{aligned} \text{Valentine: } & \frac{(0.05 \text{ mg Pt})}{(\text{Liter})} \frac{(\text{liter})}{(810,000 \text{ mg})} = 0.000000617 \\ & = 0.00000617\% \\ & = 0.0617 \text{ ppm in fuel} \end{aligned}$$

$$\text{Valentine: Pt (0.0617 ppm) + Fe (1 ppm) = } \boxed{1.0617 \text{ ppm in the fuel = Valentine}}$$

As can be seen, the lowest amount of the Valentine additive is higher than the highest amount of Applicants' additive. In addition, Valentine only improves combustion and not stabilization. Accordingly, Applicants' invention is believed patentable over the prior art cited by the Examiner.

A check for additional claim fees is attached. Authorization is given to charge payment of any additional fees required, or credit any overpayment, to Deposit Acct. 13-4213. A duplicate of this paper is enclosed for accounting purposes. Also being filed herewith is a Petition for Extension of Time with the appropriate fee.

Reconsideration and allowance are respectfully requested.

Respectfully submitted,

PEACOCK, MYERS & ADAMS, P.C.

Date: 6/30, 2003

By: 

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**DECLARATION**

I, Deborah A. Peacock, hereby declare the following:

1. I am a registered patent attorney, Reg. No. 31,649.
2. I had an original meeting with the inventors to discuss the invention. At that meeting, the inventors told me that the ranges for the organometallic compound in the invention were as follows:

.0034

.001-.005 narrow

.0001-.01 broad

These ranges are shown in the attached notes from that original meeting and highlighted for the Examiner's review.

3. When the application was prepared and filed, the broad range, set forth in 2) above, was incorrectly transcribed into the specification as 0.0001-0.1. The proper range of 0.0001-0.01 was correctly transcribed into claim 12.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

PEACOCK, MYERS & ADAMS, P.C.

By: 

Deborah A. Peacock

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Optional 4) Biocide — Kills bugs (bacteria)

Vanicide TH = triazine

~~TH~~ .001%

0.0 — 0.02 Wide range

.0005 — 0.0015 Preferred

\* 5) Organometallic compound <sup>Soluble in fuel</sup> <sup>optional</sup> containing Fe  
Does everything Mn does but lower ppm

Mn, Pt, Cerium

↳ 1402 pat.

This = catalytic converter. Don't

need part in vehicle.

.0034

Dicyclopentadienyl iron

.001 — .005 narrow

~~0.0005~~ ~~0.001~~ — ~~0.01~~ broad

Optional 6) Metal Deactivator <sup>deactivates Ni</sup>

Preferred = diamines

.03

Coats inside of steel

.01 — 0.05 narrow

wall of tank

.000 — 0.1 broad

<sup>Most important optional</sup>  
~~Dispersant~~ Copolymer → acrylic copolymer

Dispersant

~~0.1~~ 0.1

Disperses particulate,  
prevents & breaks

~~0.05~~ 0 — 0.2 broad

up agglomerates so  
can go through filters

.05 — 0.15 narrow